Patients and Methods: Nineteen pts with a median age of 56 years (range 18–70) not eligible for ablative SCT received Campath-1H 20 mg/m^2, fludarabine 25 mg/m^2 × 5 days and either cyclophosphamide 1 g/m^2 × 2 days (n=16 pts), melphalan 140 mg/m^2 (n=1 pt) or busulfan 0.8 mg/m^2 × 8 doses (n=2 pts) followed by G-CSF stimulated peripheral blood (n=13) or unmanipulated bone marrow(n=6). GVHD prophylaxis consisted of CSA at least until T+60 and mycophenolate mofetil through T+30. DLI was allowed for residual/progressive disease or mixed chimerism after T+60 in absence of GVHD. Seven pts had a previous autologous transplantation. Ten pts had myeloid diseases (AML=6, CML Ph negative=1, CML accelerated phase=1, therapy related MDS=1, myelofibrosis=1); 9 pts lymphoid (HD=3, NHD=5, PLL=1); only 5 pts were in CR at transplant. Six pts received bone marrow with a median CD34$^+$ cells infused of 3.7 × 10^6/kg, and 13 pts peripheral blood with a median of 4.5 × 10^6/kg CD34$^+$ cells infused. **Results:**19 achieved ANC >0.5 × 10^6/L within a median of 12 days (range 8–16); 2 pts rejected the graft and 1 had autologous reconstitution; 10/19 achieved sustained platelet engraftment at a median of 16 days (range 7–27). 2/17 pts with sustained engraftment developed acute GVHD; 7/14 at risk pts had CMV reactivation; TRM at T+100 was 16% (disease progression in 2 and GVHD in 1). Nine pts received DLI (5 for persistent mixed chimerism and 4 pts for persistent/progressive disease). After DLI 5 pts had GVHD limited to skin. Of the pts with myeloid malignancies 2 pts remain alive in CR at T+28, +19 months; of the pts with lymphoid malignancies 2 pts with HD are alive in CR at T+34, +15 months and 2 pts with mantle cell lymphoma are alive at T+19, T+13 months. Causes of death include disease progression in 7 pts, CMV disease in 1 pt, adenovirus/CMV disease in 1 pt, sepsis in 1 pt and GVHD in 3 pts. **Conclusion:** These results suggest that this approach is well tolerated with a low early TRM even in pts with advanced disease. Longer follow-up and better patient selection are needed.

66

UMBILICAL CORD BLOOD TRANSPLANTS (UCBT). EVALUATION OF CHIMERISM AND SURVIVAL IN RELATION TO CD34 OR MONONUCLEAR CELL (MNC) DOSE INFUSED. THE CHILDREN'S MEMORIAL HOSPITAL (CMH) EXPERIENCE

Merchant, M.[1]; Olszewski, M.[1]; Duerst, R.[1,2]; Huang, W.[1]; Jacobsohn, D.[1,2]; Kletzel, M.[1,2] 1. Children's Memorial Hospital, Chicago, IL; 2. Northwestern University Feinberg School of Medicine, Chicago, IL.

To evaluate chimerism and to determine if cell dose/kg has a relationship with time to full chimerism in children undergoing Hematopoietic UCBT unrelated (n=85) related (n=3) at CMH; between 1995 and 2004, one hundred and one UCBT were performed at CMH of those 88 meet the study criteria (survive >30 days post transplant) to be evaluable for engraftment and survival. There were patients (pts) with malignant (n=71) and non-malignant (17) diseases with a mean age of 5.0 years (.6–16) and a mean weight of 20.2 kg (5.6–61). The preparative regimen consisted of fTBI (1200 cGy) day −8 to −5, VP-16 1000 mg/m^2 day −4 and cyclophosphamide 60 mg/kg/day days −3 to −1. GVHD prophylaxis consisted of CSA, short course MTX, ATG (days 1, 3, 5, 7). Engraftment was defined as the time to reach >95% donor chimerism, assessed by either fluorescence in-situ hybridization or variable number tandem repeats (VNTRs). Cell counts were measured by the Abbott Cell Dyne counter and the CD34$^+$ cells were quantified by flow cytometry on a FACS sorter. Pts were divided in two groups according to cell doses received (<.7 or >.7) for CD34$^+$ × 10^6/kg and MNC × 10^8/kg cells. Statistical analysis was made by a non-parametric t test and column statistics (mean ± SEM and all were at the 95% CI) on (Graph Pad). The overall engraftment of the 88 patients was 72% (63/88). There was no difference among the groups in volume infused, malignant or non-malignant or the status of disease prior to transplant. Pts with the lower CD34$^+$ and MNC cells infused were heavier and showed a lower incidence of full chimerism and a trend to slower engraftment. There was also a survival difference in favor of the higher CD34$^+$ cell infused group.

Table 1.	CD34$^+$ × 10^6/kg			MNC × 10^8/kg		
Cell Doses	<.7	>.7	p Value	<.7	>.7	p Value
Age	6.8 ± 0.8	4.0 ± 3.6	0.002	6.6 ± 0.5	2.2 ± .45	<0.0001
Weight	25.7 ± 2.4	17.2 ± 1.3	0.0015	24.8 ± 1.6	12.5 ± 1.1	<0.0001
Days to >95% chimerism	37.3 ± 4.6	30.8 ± 2.9	0.2	34.8 ± 3.3	29.6 ± 3.7	0.3
% achieving full chimerism	52.9	83.3	0.001	56.8	78.0	0.02
% Overall survival	44.1	61.6	0.001	53.4	56.6	n/s
Number of patients	34	54		58	30	

67

HEMATOPOIETIC CELL TRANSPLANTATION (HCT)-SPECIFIC-COMORBIDITY INDEX: A NEW TOOL FOR RISK ASSESSMENT BEFORE ALLOGENEIC HCT

Sorror, M.L.[1]; Maris, M.B.[1,2]; Storb, R.F.[1,2]; Baron, F.[1]; Sandmaier, B.M.[1,2]; Maloney, D.G.[1,2]; Barry, S.E.[1,2] 1. Fred Hutchinson Cancer Research Center; 2. University of Washington, Seattle, WA.

We have reported on the use of Charlson comorbidity index (CCI) to predict non-relapse mortality (NRM) and overall survival (OS) for patients (pts) given nonablative or ablative HCT[1]. However, the sample size of pts with scores of ≥1, captured by the CCI, did not exceed 35%. Further, some of comorbidities were rarely found among pts given HCT. Therefore, we sought to develop an HCT-specific-comorbidity index aimed at a) better defining previously identified comorbidities, i.e. adding pulmonary functions tests to pulmonary, liver function tests to hepatic, and ejection fraction ≤50% to cardiac comorbidities and b) investigating additional HCT-related comorbidities. To this end, we retrospectively reviewed comorbidities of 1055 pts given HCT at our center between 1997–2003 after nonablative (n=294) or ablative (n=761) conditioning. Pts were randomly divided into training (n=708) and validation sets (n=347). In the training set, the unadjusted hazard ratios (HR) for 2-year NRM were calculated for each comorbidity and then adjusted for other comorbidities, disease risk, and conditioning type. The adjusted HRs were employed as weights for individual comorbidities. Differences encountered compared to the original CCI were: a) two new comorbidities were added (obesity = score 1 and peritransplantation infection = score 2), b) age ≥50 years acquired a score of 2, and c) hypertension and asthma each acquired a score of 1 instead of 0, moderate pulmonary, peptic ulcer, and rheumatologic each acquired a score of 2 instead of 1, valvular heart disease a score of 2 instead of 0, and severe pulmonary comorbidity a score of 3 instead of 1. In the training set, HR for NRM for scores 0, 1, 2, 3, 4, ≥5 were 1, 1.2, 3.5, 6.1, 7.1, and 10.8, respectively. The modified index was then validated using the validation set. This index had the advantage of 1) capturing more pts with high scores and 2) distinguishing pts with low scores who had lower NRM and better OS when compared to the original CCI (Table). Applying the scores to nonablative and ablative pts, respectively, NRM of 5 vs 10% (p=0.4) and OS of 85% vs 75% (p=0.1) were seen for scores of 0–1, 17 vs 27% (p=0.04) and 61 vs 59% (p=0.2) for scores of 2–3, and 33 vs 54% (p=0.03) and 43 vs 30% (p=0.006) for scores of ≥4. This HCT-specific comorbidity index provides a simple, readily applicable and valid method of estimating NRM and OS among pts given nonablative or ablative allogeneic HCT. (1. Sorror et al. *Blood.* 2004; 104:961.)